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## **INTRODUCTION**

For many years the Army has provided partial core support to the Institute for Laboratory Animal Research (ILAR), a component of the National Research Council (NRC). Formerly contained within the Commission on Life Sciences, ILAR is now part of a larger division of the NRC, called the Division on Earth and Life Studies. The NRC is the operating arm of the National Academy of Sciences, a private, nonprofit organization that was created in 1863 by congressional charter to serve as an official advisor to the federal government on questions of science and technology.

Founded in 1952, ILAR is both a national and international leader in developing guidelines for animal care, breeding, and use; descriptions of animal models for human diseases and physiological processes; and reports on specific issues of scientific and humane use of laboratory animals. ILAR disseminates this information to the biomedical and laboratory animal science communities by wide distribution of its reports as well as through presentations and exhibits at national meetings. These guidelines from the National Academy of Sciences serve as important indications to members of the U.S. Congress and other government officials, the press, and the public of the high quality of care provided to laboratory animals. ILAR's mission is to help improve the availability, quality, care, and humane and scientifically valid use of laboratory animals.

Recognized experts in fields appropriate to the required tasks carry out ILAR's studies, like all those of the NRC. These experts serve on a volunteer basis, without compensation. As a part of the NRC, ILAR has access to this country's most knowledgeable and distinguished laboratory animal and biomedical scientists, who provide objective counsel on laboratory animal issues. Many of the experts used by ILAR are also members of the National Academy of Sciences or the Institute of Medicine. In some cases, ILAR utilizes scientists from other countries.

Independent NRC-appointed experts in the subject area extensively review reports of NRC studies before they are released. They are prepared in sufficient quantity to ensure distribution to the sponsor, experts, and other relevant parties in accordance with Academy policy. Reports are usually made available to the public without restriction.

## **ILAR'S GOALS**

Since its founding, ILAR has provided guidance and information on laboratory animal matters to the federal government, the biomedical and laboratory animal science communities, and the public. In keeping with its mission, ILAR continually seeks to strengthen and refine its existing programs and to initiate new programs that will assist government officials; scientists who use animals in research, testing, and education; and the institutional animal care and use committees that monitor animal use. ILAR's goals are as follows:

- to provide a forum within the National Academy of Sciences for the Department of Defense to discuss issues and develop guidance for laboratory animal-related matters;

- to continue to serve on behalf of biomedical science and education as an authoritative voice within the U.S., and on behalf of the U.S. scientists internationally;
- to promote humane and appropriate care and use of laboratory animals;
- to provide scientific guidance on laboratory animal-related issues to agencies of the federal government and others on request;
- to provide information on laboratory animal matters to government officials, laboratory animal and other biomedical scientists, institutional animal care and use committees, and the public;
- to promote the use of standardized nomenclature for accurately defining and identifying genetic stocks of animals;
- to assist developing countries in attaining quality laboratory animal science programs through dissemination of information including the translation of ILAR reports;
- to promote cost-effective ways to preserve valuable animal models;
- to sponsor workshops in areas of importance to the laboratory animal community; and
- to increase access to information about appropriate biological models and methods through ILAR's home page, databases, publications, and resources of the ILAR Associates program, including the quarterly *ILAR Journal*.

### **Accomplishing the Goals**

ILAR accomplishes its goals through its core program, which is carried out by the staff, and its special-project program. The number of studies and size of the staff are dependent on the number of special projects and available funding. Both programs are directed by a 15-member ILAR Council composed of experts in laboratory animal medicine, virology, zoology, genetics, medicine, ethics, and related biomedical sciences.

### **CORE PROGRAM**

The Core Program of ILAR supports the activities of ILAR Council, ILAR's international activities, ILAR's information and communication programs (including the Animal Models and Genetic Stocks Information Program), the ILAR web site, and exhibits at major scientific and veterinary meetings. The production of the peer-reviewed *ILAR Journal* is also supported by core funds. Core funds support staff time devoted to these activities as well as development of new projects.

### **ILAR Council**

The ILAR Council serves four principal functions: 1) to provide program direction and strategic planning; 2) to oversee the information and communication programs, which consist of the Animal Models and Genetic Stocks Information Program, the ILAR web site, and the quarterly *ILAR Journal*; 3) to oversee special projects; and 4) to direct ILAR's international programs and its participation as the U.S. national member in the International Council of Laboratory Animal

Sciences (ICLAS). The international program is discussed in the Special Projects section below. Periodically, the Council meets with other scientists and funding agency administrators to discuss areas in which ILAR might provide guidance. The Council uses these discussions in strategic planning. The Council occasionally employs core funds to undertake specific, NRC-approved projects. The current members of ILAR Council are listed at the end of this document.

ILAR Council meets for two days, three times per year at one of the National Academies' facilities. During each of these meetings, ILAR Council's three subcommittees hold separate half-day meetings to discuss subcommittee projects. The three subcommittees are: 1) Animal Resources Information Subcommittee, 2) International Subcommittee, and 3) the *ILAR Journal* Editorial Board.

### Staff

ILAR is staffed by the director, a managing editor of the *ILAR Journal*, a project assistant who maintains the web page and various databases, an administrative assistant and secretary to the director, and a project director. A part-time web master provides support for online resources. Under the special projects program, staff works closely with experts to engage in studies, develops working papers, assists in the production of cohesive reports, and conducts literature reviews. ILAR staff members are listed at the end of this document.

### **International Activities Subcommittee**

ILAR has had a long history of interest in international laboratory animal science. Historically, this interest has sought to assist young investigators in developing countries through dissemination of reports (some translated into foreign languages to increase their usefulness) and participation in international meetings that support young investigators. In 1988, ILAR became the U.S. national member of the International Council for Laboratory Animal Science (ICLAS), with support from member agencies of the Interagency Research Animal Committee (IRAC). This membership affords a conduit for U.S. investigators to develop and conduct an active international program in laboratory animal science. One goal of the U.S. membership in ICLAS was to streamline ICLAS management and programs to better represent U.S. scientists in the international community. Following are the major international efforts of ILAR.

### *Report Translations*

ILAR's most longstanding international effort has been to have our seminal publication the *Guide for the Care and Use of Laboratory Animals* (the *Guide*) translated into as many languages as possible. The *Guide* is used as the standard for laboratory animal care by the Public Health Service in the U.S., and by the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC) International in their certification of animal facilities throughout the world. The *Guide* has been translated into French, Spanish, Portuguese, Thai, Japanese, Korean, Arabic, Russian, and two versions of Chinese. An Indonesian version has recently been submitted for review.

Another of ILAR's reports, *Occupational Health and Safety in the Care and Use of Research Animals*, was recently published in Japanese and is now being translated into Korean. Translation of ILAR reports is carefully monitored and each translation is reviewed for its faithfulness to the English version before permission is granted for its publication.

#### *International Council for Laboratory Animal Science (ICLAS)*

ILAR supports the activities of ICLAS through its participation as the US representative. ICLAS is an international scientific organization dedicated to advancing human and animal health by promoting the ethical care and use of laboratory animals in research worldwide. ICLAS was established in 1956 under the auspices of UNESCO, and interacts in an official capacity with the World Health Organization (WHO), the International Council of Scientific Unions (ICSU), the Council for International Organizations of Medical Sciences (CIOMS), and the World Veterinary Association (WVA). ICLAS sponsors meetings throughout the world, but focuses particularly on third world countries, where animal care conditions are in need of improvement. Through ICLAS, ILAR provides guidance in the field of laboratory animal science to scientists in developing countries. Dr. Steven Pakes, former chair of ILAR Council, was the President of ICLAS until October 2003. Dr. Harry Rozmiarek is now the US representative to ICLAS and will report to ILAR Council.

#### *International Workshops*

As part of ILAR core activities, ILAR has sponsored meetings first with scientists from the U.S. and Japan, and more recently on a more comprehensive international basis. The two most recent reports from U.S. – Japan meetings are titled *Microbial and Phenotypic Definition of Rats and Mice* (1999) and *Microbial Status and Genetic Evaluation of Mice and Rats* (2000). In April 2002, ILAR sponsored an international meeting entitled: *International Perspectives – The Future of Nonhuman Primate Resources*. This conference brought together participants from six continents to address international strategies and practices for providing nonhuman primates needed for biomedical research while ensuring appropriate conservation practices. The proceedings from this meeting are in the process of publication. By promoting the harmonization of methods for the care and use of animals, ILAR hopes to improve the quality of information exchange among countries and ultimately reduce the number of animals used. ILAR also cosponsored two U.S./Brazil meetings (in 1999 and 2001) on *The Future of Animal Research*. The purpose of these meetings was bring together scientists and veterinarians to develop stronger ties between the two countries, to exchange perspectives about laboratory animal science, to explore future directions for research in this field and to create opportunities for exchanges of scientists and students. ILAR recently hosted another International Workshop on the *Development of Science-based Guidelines for Laboratory Animal Care*, which focused on issues of international harmonization and on the need for more research in order to develop scientifically sound regulations. The proceedings for this workshop are now being prepared for publication.

#### *Observer Status at the Council of Europe*

In 1999, ILAR was granted observer status to the Council of Europe in the preparation of guidelines for the protection of live animals used for experimental and other scientific purposes. The goal of the Council of Europe is to harmonize guidelines throughout Europe and it is desirable to have these guidelines harmonized with regulations and guidelines in the U.S. Since the *Guide* provides the basis for many of the current U.S. guidelines, it is useful and efficient for ILAR to be an observer to this process and have the opportunity to comment.

### *Foreign Participation in ILAR Activities*

In the last few years, ILAR has purposely increased foreign participation in its Council and ad hoc committees. Currently, two Council members are from the European Union, Dr. Michael Festing from the U.K. and Dr. Coenraad Hendriksen from The Netherlands. Both of these individuals are intimately involved with the current and developing policies in Europe that will affect the U.S. They provide valuable insights and guidance for ILAR's international activities. ILAR also had international representation on its Committee on Guidelines for the Care and Use of Animals in Neuroscience and Behavioral Research in the person of Dr. Anne-Dominique Degryse, who is the head of Laboratory Animal Resources at the Centre de Recherche Pierre Fabre in Paris. Dr. Degryse also serves on the advisory council for the Association for the Assessment and Accreditation of Laboratory Animal Care International (AAALAC), the independent, international accrediting organization for laboratory animal facilities.

### *Future Activities*

In all likelihood, ILAR will become more involved in international activities in the future. The need for greater international involvement arises from a common desire to harmonize guidelines and standards for laboratory animal care across the world with the goals of improving animal welfare, conserving animal resources, and improving scientific interchange through detailed characterization of the animals used in research.

### *ILAR Journal Subcommittee*

#### *Work Statement*

*ILAR Journal*, a quarterly, peer-reviewed publication, provides thoughtful and timely information for all those who use, care for, and oversee the use of laboratory animals. The readership of *ILAR Journal* includes more than 3,500 investigators in biomedical and related research, institutional officials, veterinarians, and members of IACUCs. The *ILAR Journal* Editorial Board (a subcommittee of ILAR Council) plans each issue around a chosen theme and carefully solicits authors who can best present a balanced view of the topic. Each article undergoes a rigorous peer review.



The goal of *ILAR Journal* is to provide a unique repository of timely, high quality information on new developments in biomedical research that involve the use of laboratory animals. These developments may include (but are not limited to) information on animal models of human disease, humane care and use of laboratory animals, animal care and use committee issues, ethical issues, and changes in federal and international regulations affecting animal research. The broad target audience includes investigative scientists, veterinarians, animal care staff, government regulators, institutional administrators, students – in fact, everyone involved with the care and use of animals in biomedical research.

The specific aims of the *ILAR Journal* are:

- To be the premier U.S. periodical resource for investigators, institutional animal care and use committee (IACUC) members, and veterinarians involved in writing and/or reviewing protocols for laboratory animal research that must comply with national, and sometimes international, regulations and policies.
- To be one of the primary international resources for scientists on the numerous spontaneous and experimentally produced animal models of human diseases.
- To be a major resource for veterinarians on diseases of laboratory animals, characterization and care of animal models, especially newly emerging genetically modified animals.
- To increase the quality of protocol review by IACUCs by providing a peer-reviewed resource on issues facing the committee. The publication of information written for scientists on animal models, animal diseases, and federal rules and regulations allows cross-fertilization of ideas among bench scientists, veterinarians, animal facility personnel and IACUC members.
- To disseminate this information by providing a publication at minimal cost to all members of the international biomedical community.
- To provide an easily accessible mechanism for members of the scientific community to provide input to the National Research Council on issues that could directly affect the use of animals in biomedical research.

### ***Recent Issues***

Volume 45 (3) *Advances in Diabetes Through Animal-related Research* (2004)

Volume 45 (2) *Nonhuman Primate and Other Animal Models in the Study of Women's Health* (2004)

Volume 45 (1) *When Rats and Mice Cannot Answer the Question: Nontraditional Animal Models for Laboratory Research* (2004)

Volume 44 (4) *Physiological Research Outside the Laboratory* (2003)

Volume 44 (3) *Behavioral Research Outside the Laboratory* (2003)

Volume 44 (2) *Animal Models of Stroke and Rehabilitation* (2003)

Volume 44 (1) *Occupational Health and Safety in Biomedical Research* (2003)

Volume 43 (4) *Principles of Experimental Design in Biomedical Research* (2002)

Volume 43 (Suppl) *Proceedings of the June 2001 ICLAS/CCAC International Symposium on Regulatory Testing and Animal Welfare* (2002)

Volume 43 (3) *Advanced Physiological Monitoring in Animals* (2002)

Volume 43 (2) *Mouse Models of Human Disease* (2002)

Volume 43 (1) *Implications of Human-Animal Interactions and Bonds in the Laboratory* (2002)

*Role of ILAR staff and Editorial Board in the overall management of ILAR Journal*

The *ILAR Journal* is produced by a full-time Managing Editor, who is a member of ILAR staff, with oversight by the *ILAR Journal* Editorial Board. The Editorial Board is made up of 5 Council members, one of whom is the Editor-in-Chief. This group meets three times per year in conjunction with the full Council meeting to plan the structure and authorship of future issues.

Members of the Editorial Board are chosen to represent different segments of the readership and currently include two veterinary pathologists, a primatologist, a mouse geneticist and a nonhuman primate neuroscientist. This Board approves topics for each issue, provides the names of potential contributors and reviewers, and serves as the ultimate editorial authority. Current members of the Editorial Board are:

- Janet R. Gonder, DVM, Ph.D., Editor-in-Chief, is an independent veterinary consultant who was formerly manager of the laboratory animal department at Baxter Healthcare Corporation. Her expertise is in laboratory animal medicine and occupational health and safety.
- Stephen W. Barthold, DVM, Ph.D. is Professor and Director of the Center of Comparative Medicine at the University of California, Davis and is a member of the Institute of Medicine. His expertise is in veterinary pathology.
- Randall J. Nelson, Ph.D. is a Professor in the Department of Anatomy and Neurobiology, College of Medicine, The University of Tennessee. He is a neuroscientist and an expert in the use of nonhuman primates. His studies concern the role of the somatosensory cortex in receiving signals, integrating the various inputs, and controlling movement.
- William C. Campbell, Ph.D. is Adjunct Professor of Biology and Dana Fellow of the Research Institute for Scientists Emeriti, Drew University. He formerly worked for Merck where he made numerous contributions in the study of parasitic infections in small animals. He is a member of the National Academy of Sciences and has served on numerous journal editorial boards during his career.
- Thomas L. Wolfle, D.V.M, Ph.D, is a past Director of ILAR. He is an expert in animal behavior, especially related to the behavior of nonhuman primates. He has had considerable federal government experience in the Air Force and at NIH before joining ILAR in 1988.

*ILAR Associates Program*

In an effort to increase ILAR's information resources and to better leverage funding from core and project sponsors to support other activities, ILAR initiated an Associates program in 1997. Individuals and institutions that subscribe to the Associates program help defray the cost of publishing the *Journal*. ILAR Associates receive the *ILAR Journal* (number of copies varies

with level of Associate membership) and a 20% discount on all ILAR and other National Academy Press publications. ILAR Associates represent the best of US biomedical and laboratory animal scientists and serve as an important audience to receive, critique, and provide guidance to ILAR's programs. ILAR's core sponsors are valuable members of the Associates program.

#### *Future Issues of ILAR Journal*

The Editorial Board must identify topics for future issues of ILAR Journal well in advance. The following issues (with anticipated publication date) are in some stage of planning or production:

Volume 45 (4) *Animal Models and Experimental Design Considerations for Endocrine Disruptor Research and Testing* (September 2004)

Volume 46 (1) *Infectious Disease Research in the Age of Biodefense* (December 2004)

Volume 46 (2) *Care and Welfare of Animals with Implants* (March 2005)

Other topics of high priority for future issues include adjuvants and immunization, strategies for use of outbred strains of mice and rats, rodent enrichment, animal models of type 2 diabetes and obesity, and humane endpoints in animal research.

### **Animal Resources Information Subcommittee**

#### ***Work Statement and Recent Accomplishments***

As author of the *Guide for the Care and Use of Laboratory Animals*, ILAR is in a position to assist biomedical researchers, veterinarians, and Institutional Animal Care and Use Committees (IACUCs) in interpreting guidelines for the humane care and use of animals, and fulfilling requirements of the Animal Welfare Act and PHS policy regarding reduction of pain and distress and identification of alternative methodologies. For more than 40 years, ILAR has conducted a program to provide such information. That program, called the Animal Models and Genetic Stocks Information Program, offers assistance in locating sources of animals, selecting appropriate animal models, using standardized nomenclature, and understanding the importance of the use of animals in biomedical and behavioral research and testing. It includes two databases: one (called Animals for Research, AFR) contains commercially available and investigator-held colonies of animals for research; the other is a registry of codes used with standardized nomenclature of rodents and rabbits to identify institutions that maintain breeding colonies. The databases have been incorporated into ILAR's web pages and are available to investigators worldwide. While the AFR database has been a useful resource, it has become impractical to try to maintain an exhaustive list of animal models. This is especially true in the area of genetically modified animals. Given ILAR's limited resources, the ARIS decided that it would be more efficient to develop a web-based search engine that would enable investigators to search through all available sources of animal strains and models. To that end, we have implemented a search engine with the capability of searching all of the commercial and private animal breeders, lab animal repositories, and animal resource

databases that are linked to ILAR's site, as well as the ILAR website. Current activities are focused on expanding this list of linked websites and partnering with these organizations to provide high level search capabilities.

More recently, ILAR has placed more emphasis on its web site (<http://www.national-academies.org/ilar>) as a source of information on the care and use of laboratory animals. We have revamped the entire web site to make it more user-friendly, added components for different constituencies, and developed a comprehensive search engine to facilitate user interactions.

Having launched the new web site, we have researched various software to monitor traffic to the site and are planning to utilize the web statistical package Web Trends. Data from the old web site using this program showed that there were over 56,000 visits to the ILAR site from January through November 2002, with >13,000 going to the *ILAR Journal* on line. We are anticipating that with the new site, traffic will increase considerably.

Other aspects of ILAR's information program are focused on the ability to interact with scientists and veterinarians at national meetings. ILAR exhibits and/or lectures at these national meetings to enhance our outreach programs and increase the visibility of ILAR's programs and publications. ILAR has routinely traveled to the national meetings of the Society for Neuroscience, Experimental Biology, the American Association for Laboratory Animal Science, the Society of Toxicology, the Scientists Center for Animal Welfare, and Public Responsibility in Medicine and Research.

Core funds are used to pay staff time to develop and maintain the databases and web development, for software and other materials needed in web activities, and for travel of staff to national meetings. Core funds have also supported the development of a marketing plan for ILAR to increase its visibility throughout the scientific community. The marketing plan is also poised to help increase the visibility of the *ILAR Journal* and to increase the number of associates (subscribers). ILAR strives to provide information and scientifically-based guidelines that will benefit the research enterprise and to communicate the message that humane science is the best science.

### **SPECIAL PROJECTS**

Projects are developed in response to specific requests from government agencies and private organizations or are initiated by ILAR staff or Council members. Although these projects are supported by contracts and grants from federal agencies, foundations, and private organizations, they are never completely separate from the core program as the ILAR Council is involved during each step of the project. The Council reviews each project extensively before it is undertaken, examines the qualifications of experts, and monitors the conduct of the project to ensure that it is accomplished in a timely manner. As such, core sponsorship (including funding provided by this grant) is recognized in each ILAR project report. In addition, some ILAR project reports are published as special inserts of the core-supported *ILAR Journal*. The following projects are under way or will begin when funding has been received.

### *Projects Recently Completed*

- Occupational Health and Safety in Care of Nonhuman Primates

A committee of experts has prepared this report which identifies the hazards associated with non-human primates in research, education, and testing; assesses the degree of risk of these hazards; and suggests options for managing the risks including engineering controls, administrative procedures, personal protective equipment, and worker training.

- Guidelines for Use of Animals in Neuroscience and Behavioral Research

An ad hoc committee has prepared a document that identifies common research themes in neuroscience and behavioral research, describes methods for recognizing and minimizing any negative impact the research might have on health and welfare of the animals, and discusses the innovations and limitations of each method.

- International Perspectives – The Future of Nonhuman Primate Resources. Proceedings of the Workshop Held April 17-19, 2002.

This report is a compilation of the presentations from the international workshop sponsored by ILAR.

- National Need and Priorities for Veterinarians in Biomedical Research

This report identifies various factors which contribute to creating an unfulfilled need for veterinarians in the biomedical research workforce. One factor is an increase in the number of NIH grants utilizing animals and the burgeoning use of transgenic rodents, without a comparable change in the supply of appropriately-trained veterinarians. A variety of strategies were developed by the committee to recruit more veterinarians into the field of biomedical research.

### *Projects in Progress*

- Revision of the 1991 publication for students: *Science, Medicine and Animals*

The revision addresses animal use in scientific and medical research. The text for this report completed and provides an objective assessment of the scientific issues associated with the use of animals in research; examines historic impacts in human and animal science and medicine attributable to the use of animals in research; explores alternatives to the use of animals; defines current legal and regulatory aspects of laboratory animal use; and presents examples of appropriate, responsible, and contemporary approaches to

the use of animals in research. A professional designer has provided graphics and other visuals for the report to make it attractive to students and other target audiences. ILAR is raising funds to print and widely disseminate this publication to middle and high school teachers throughout the country.

- Guidelines for Humane Transportation of Laboratory Animals

A committee will be appointed to address problems associated with transportation of laboratory animals. Among the issues to be considered are: animal welfare, availability of services, regulatory oversight and permitting problems, import/export requirements, transport of biological specimens and potential biosecurity concerns. The resulting report will provide recommendations to improve transportation practices that will benefit the research community as well as the animals.

- Review of Smithsonian's National Zoological Park

This project is being performed in conjunction with the Board on Agriculture and Natural Resources. A committee is assessing the quality and effectiveness of animal management, husbandry, and care at the National Zoological Park in Washington, DC and the Conservation and Research Center in Front Royal, VA.

- Toxicity Testing and Assessment for Regulatory Data Needs

A committee will conduct a two-part study to assess and advance current approaches to toxicity testing and assessment to meet regulatory data needs. In the first part (12 months) of the study, the committee will review selected aspects of several relevant reports by EPA and others on this topic. The second part of the study (24 months), if approved, will consist of the committee preparing a report presenting a long-range vision and strategic plan for advancing the practices of toxicity testing and human health assessment for environmental contaminants.

*Prospective Activities (Approved Projects in Need of Funding)*

ILAR is planning a series of projects for the next five years that will culminate in the revision of the *Guide for the Care and Use of Laboratory Animals*. The two projects, described below, are in areas of great importance and when completed, will produce reports complementary to the *Guide*. This 5-year plan is ambitious and perceived by Council to be of potentially high value to the laboratory animal research community.

- Update of *Recognition and Alleviation of Pain and Distress in Laboratory Animals*

A study committee will update and supplement the ILAR report *Recognition and Alleviation of Pain and Distress in Laboratory Animals*. The committee will review the current scientific literature regarding mechanisms of pain and distress for species of animals used in biomedical research. Other issues to be reevaluated include reviewing the literature regarding methods for recognizing and alleviating pain and distress with an

emphasis placed on establishing principles for recognition and alleviation rather than procedures. Major emphasis will be placed on principles to facilitate the identification of humane endpoints, pharmacologic principles to control pain and distress, and principles to utilize in minimizing pain and distress associated with experimental procedures. While all possible scenarios cannot be included in this document, general guidelines and examples will be given to aid IACUC members, investigators and animal care staff in making decisions about protocols using laboratory animals as framed by current regulations. Recommendations will be based on the most current scientific data where available. The committee will also identify gaps in the scientific literature where additional research is needed and will propose mechanisms to address these gaps.

- *Rodents in Research and Testing*

A study committee will update the 1996 ILAR report *Laboratory Animal Management: Rodents*. The committee will identify current best practices in laboratory rodent care and use and incorporate these changes into the revision. This effort will adopt a focus on performance standard guidelines as reflected in the current edition of the *Guide for the Care and Use of Laboratory Animals*. Additional topics to be included are phenotyping, quantitative genetics, enrichment, and identification methods

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## **Appendix: ILAR Council (with areas of expertise) and Staff**

### **Peter Ward, MD\*-- Chair**

Department of Pathology  
University of Michigan, Ann Arbor  
(Pathology)

### **Stephen W. Barthold, DVM, PhD\***

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(Veterinary Pathology)

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Drew University  
Madison, NJ  
(Veterinary Pathology)

### **Rosemary W. Elliott, PhD**

Department of Molecular and Cellular Biology  
Roswell Park Cancer Institute, Buffalo, NY  
(Mouse Genetics and Molecular Biology)

### **Michael Festing, PhD, DSc**

Consultant, Medical Research Council  
United Kingdom  
(Genetics, Statistics, Bioinformatics)

### **Janet C. Gonder, DVM, PhD**

Independent Veterinary Consultant  
Pinehurst, NC  
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